# Dallas Area Rapid Transit (DART) Dallas, Texas

# DART Redesign of Rider Information Pieces and Bus Stop Signs to Educate Riders

Best Marketing and Communications Educational Initiative
Print Media

Group 3 – Greater than 20 million annual passenger trips



# Situation



# Bus Route Categories – Based on Frequency

With the New Bus Network, DART changed how it categorized its routes, from route type to route frequency.

DART wanted to find a graphical way to indicate to riders – at a glance – what group a bus route was in.

### **Previous Bus Route Numbering Scheme**

Series	Route Type
001-099	Core frequent, freeway/BRT local routes
100-199	Local radial routes
200-299	Express routes
300-399	Feeder routes
400-499	Crosstown routes

### **New Bus Route Numbering Scheme**

Range	Route Type
001 – 099	7-day svc, 15 – 20 min Freq
100 – 199	7-day svc, 30 min Freq
200 – 299	7-day svc, 40 – 60 min Freq
300 – 399	Express
400 – 499	Shuttles
500 - 599	Special Events/Emergency Shuttles



# Customer Information Pieces to be Updated

Printed Materials
How To Ride Guide - General
Timetables for each Route
Service Change Brochure (undecided)
CBD Downtown Dallas Map Brochure
Bus Operator Route Guides
Rail Guide
How To Ride Guide - Airport
TRE Guide
System Map
Severe Weather Guide
GoLink Zone Brochures for each zone

Signs
Bus Interior
Rail Interior
Corner Markers
Guide-A-Rides
Bus Blades
Bus Blade Bags
Route Decals
Wind Screens
Platform Banners
Mini Pylons
Maxi Pylons
TVM

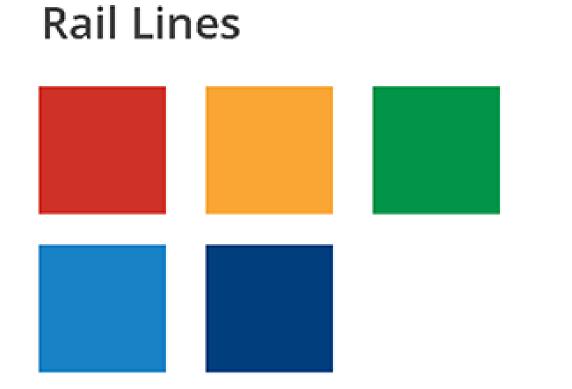


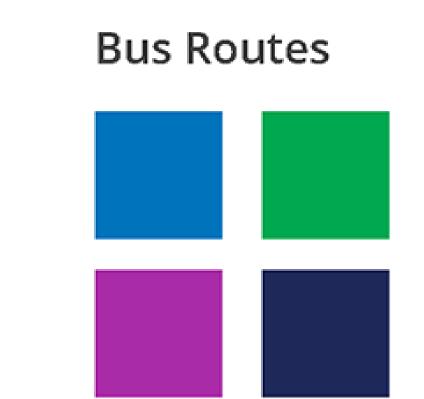
# Customer Information Materials



### Rail and Bus Color Scheme – Previous

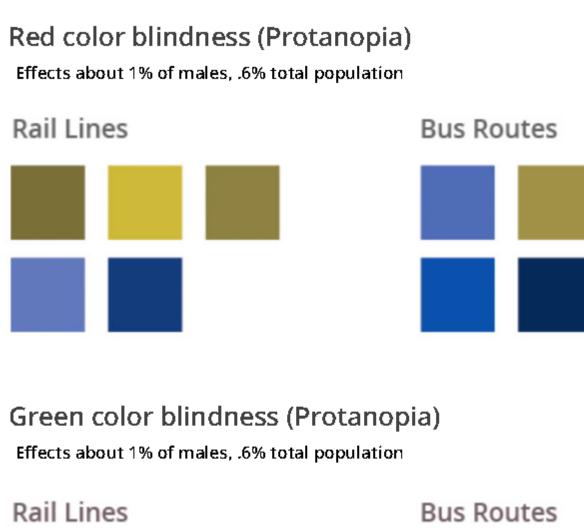
### Old Color System



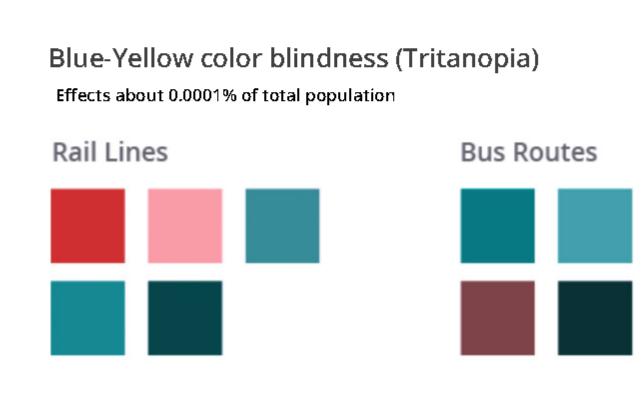


### **CHALLENGES:**

- Similarity of bus and rail colors implied service connections where there were none.
- Service-based color system was confusing for riders, with both blue and purple indicating local bus service.
- Neither rail nor bus lines were friendly for any of the three most common forms of color blindness.
- Purple bus route color doesn't have an accurate HEX match for web.





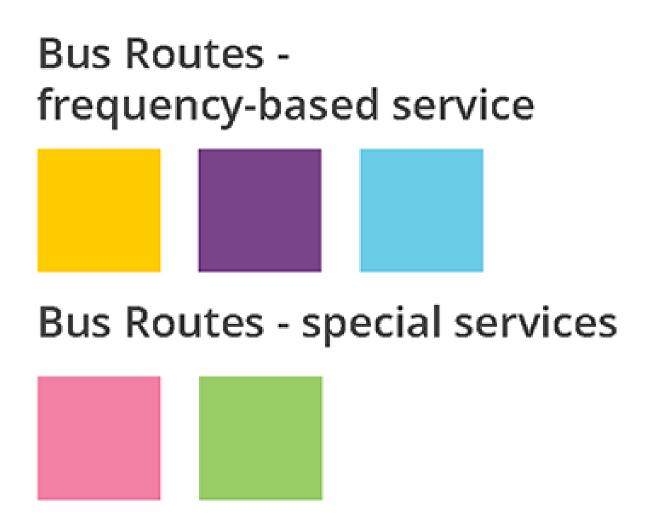




### Rail and Bus Color Scheme - New

### New Color System





### **SOLUTIONS:**

- Bus colors now correlate directly to service type or service frequency.
- Shifting the red line lighter, green line darker, and bus lines to new shades fixes color blindness issues, even in HEX (web) environments.
- All colors have solid HEX approximations.

# Red color blindness (Protanopia) Effects about 1% of males, .6% total population Rail Lines Bus Routes - frequency-based service Bus Routes - special services Green color blindness (Protanopia) Effects about 1% of males, .6% total population Rail Lines Bus Routes - Special services

### Blue-Yellow color blindness (Tritanopia)

Effects about 0.0001% of total population





frequency-based service

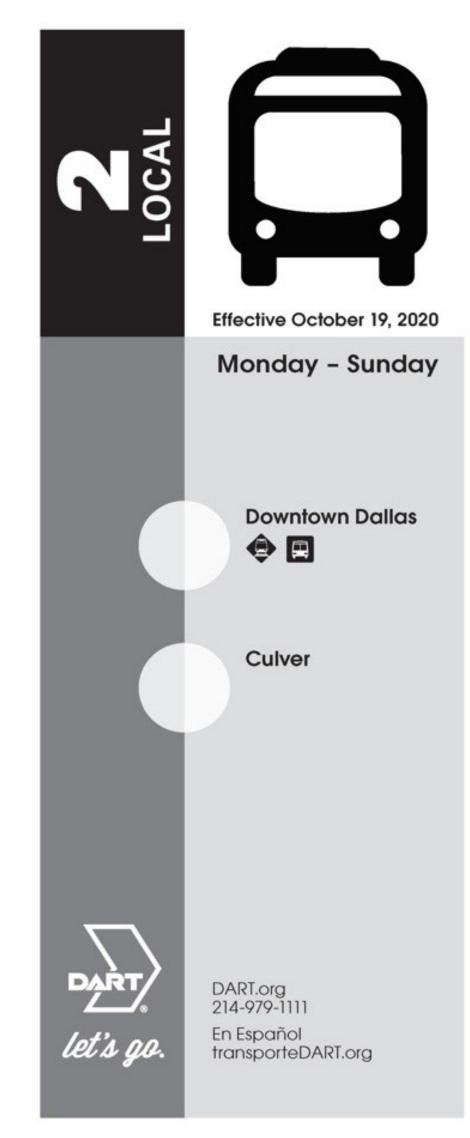
Bus Routes - special services

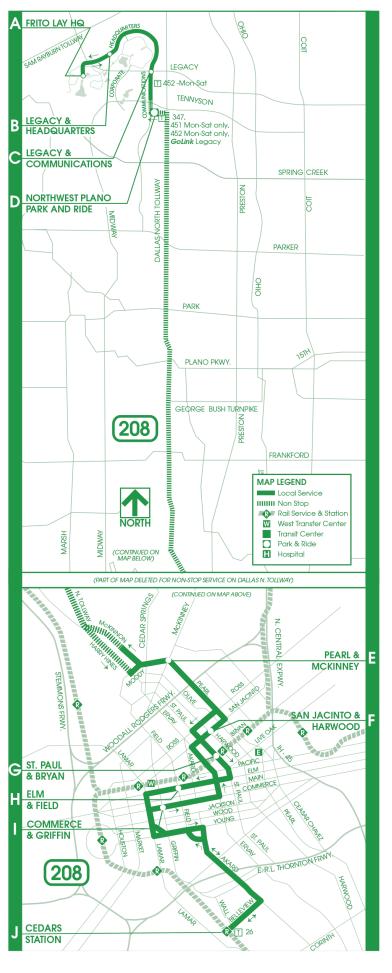


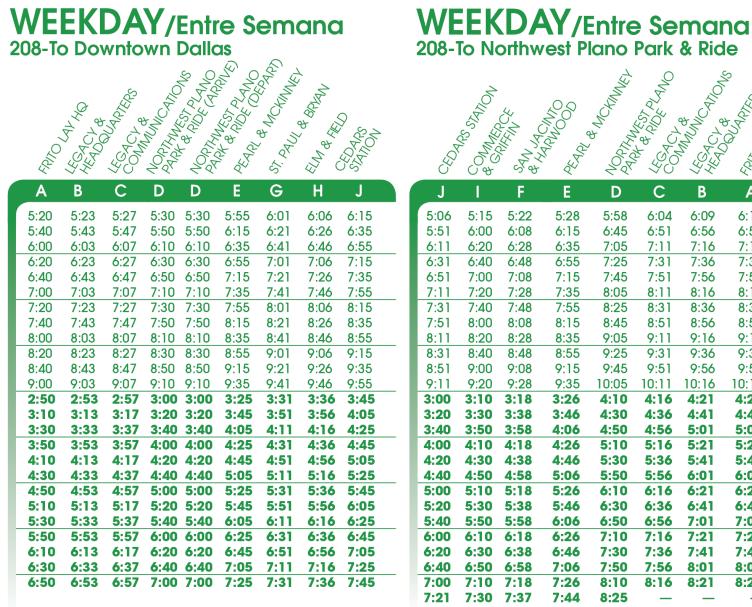
# Bus Route Brochures – Previous Design

### CHALLENGES:

- Color scheme did not tie to route numbering scheme.
- Single-color design made it harder to differentiate between routes and base map.
- PM time points were bolded, which did not provide enough contrast for many riders to perceive.
- Icons were used inconsistently.







PM listings in Bold type/PM en Números Obscuros

No Holiday Service on days observed for Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the day

after Thanksgiving, Christmas Day and New Year's Day.

### HORARIO EN DÍAS FESTIVOS

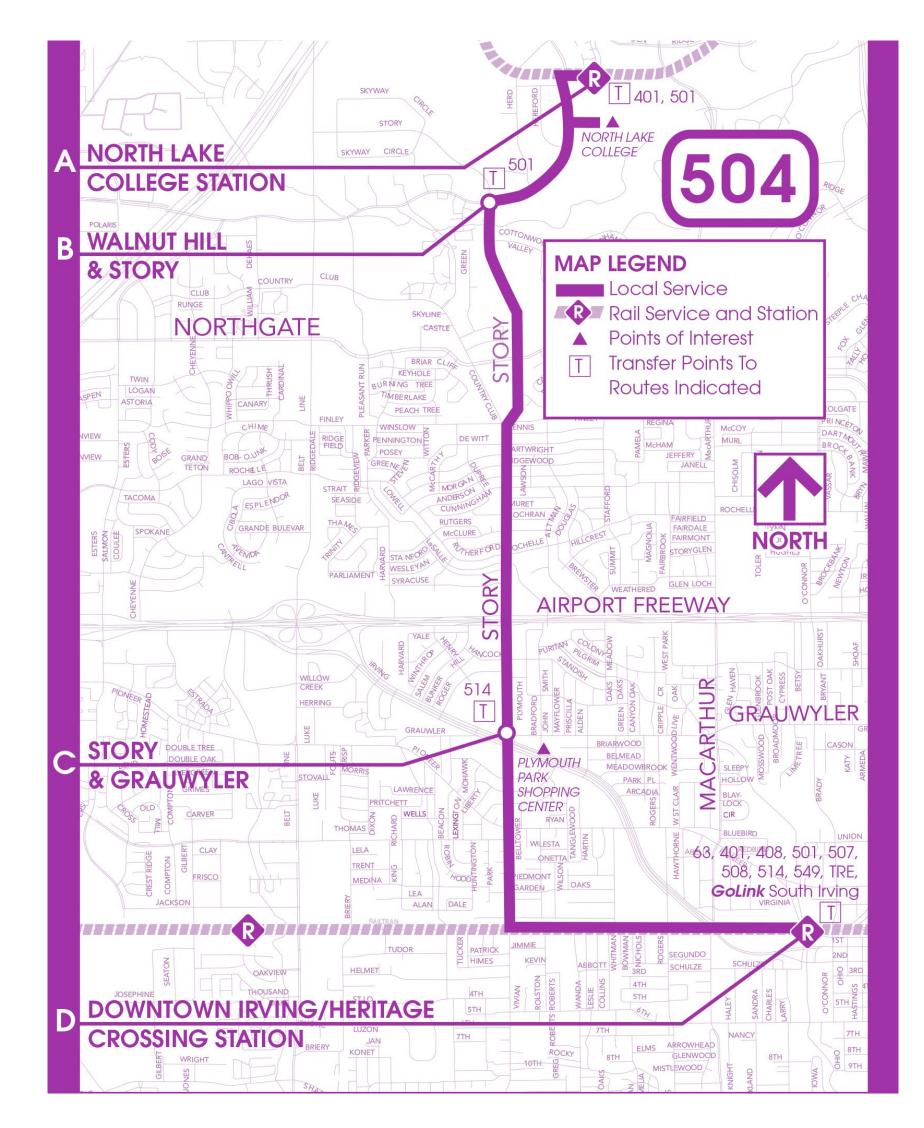
los Caídos, Día de la Independencia, Día del Trabajo Día de Acción de Gracias, el día después de Acción de Gracias, Navidad y Año Nuevo.

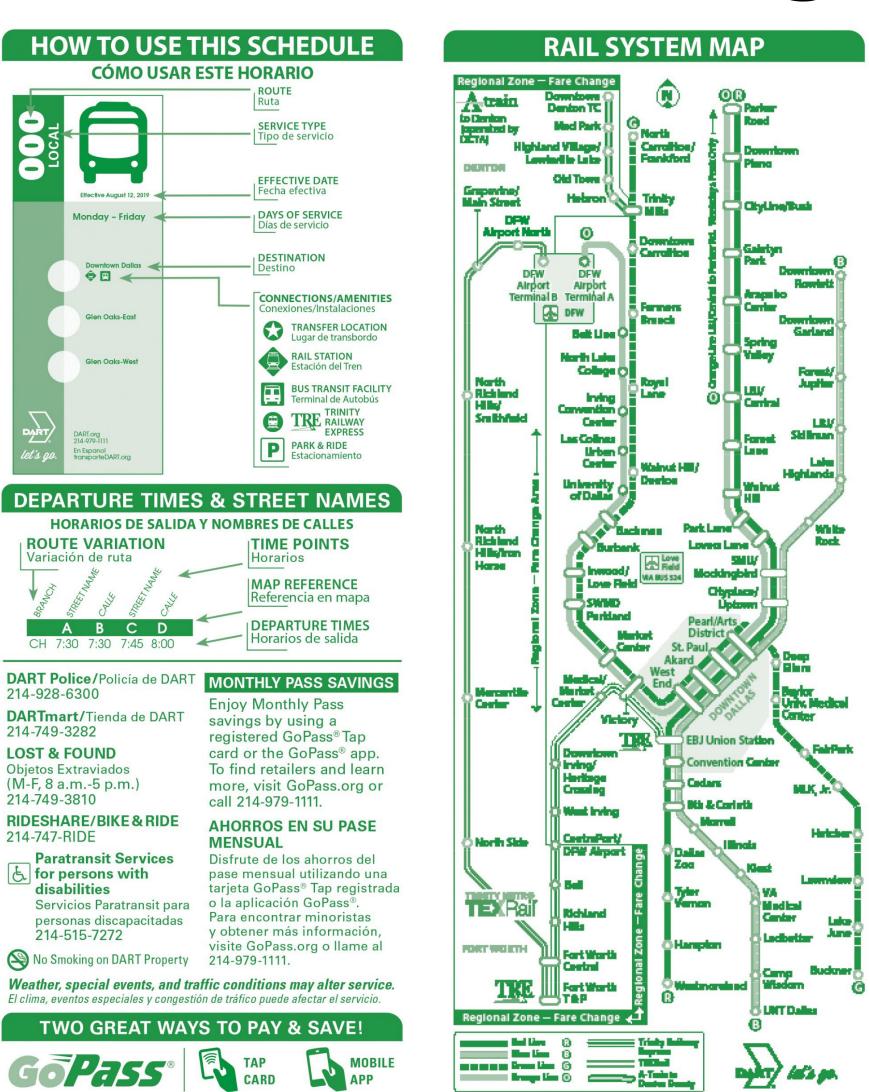


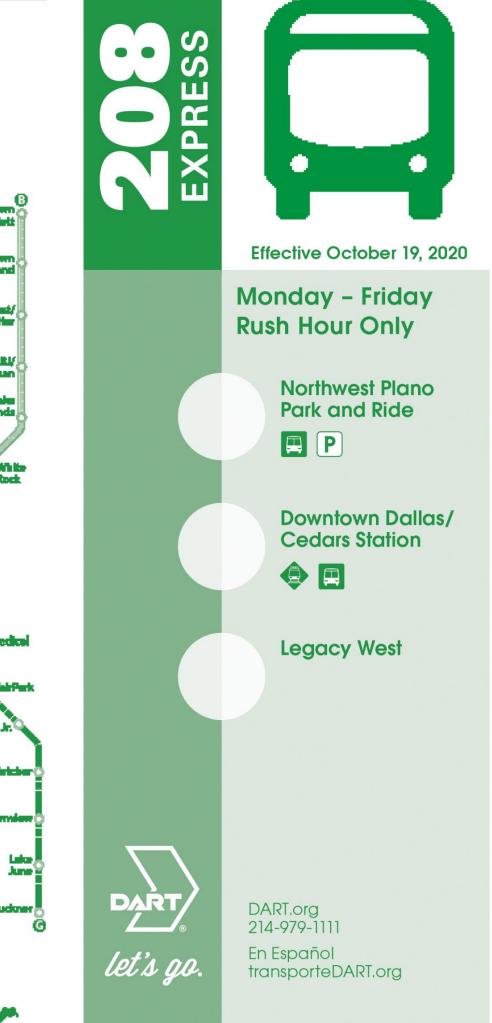




# Bus Route Brochures – Previous Design









### Bus Route Brochures - Color Research

Research into color blindness and other visual impairments yielded these design guidelines to increase readability of public transportation maps and materials:

- **Stylize maps** without too much geographical information to makes it easier to differentiate bus route lines from street lines.
- Use white frames around the bus route lines to keep the colors invariable and reduce confusion when lines intersect.
- Use thick lines to help the eye interpret the color better.
- Mark route lines with route numbers, especially when the line intersects with others.
- Vary the intensity of the colors since colorblind persons can see intensity differences but they may not see a difference between similar colors of the same intensity. For example:
  - Brown, red/pink, green
  - Grey, red/pink, green
  - Blue, purple, red, pink, green

8% of men have some sort of color-blindness

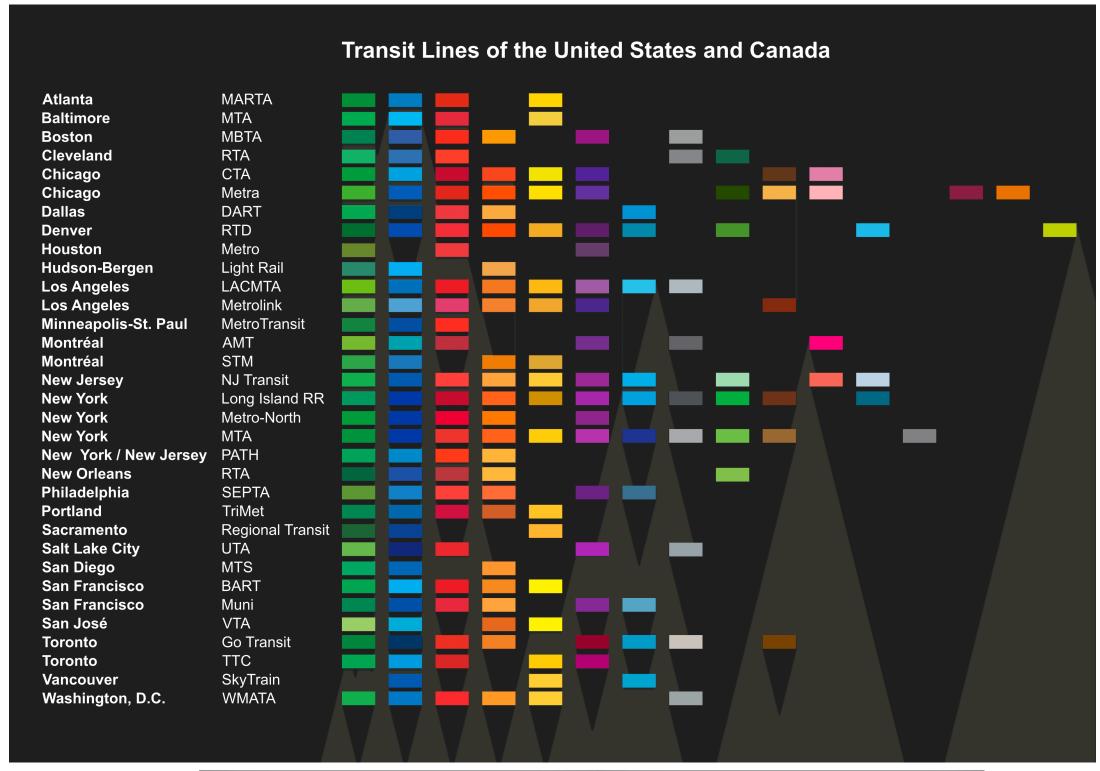
T2	Т3	T4	T5	T6	<b>T7</b>	T8	T9	T11	T36	Tb
Z	Х	у		(y)	Х	У	Z	х	Х	
	Х	У		(y)		У			х	
	Х	У				у			Х	
Z	Х	У	â	å	æ	У	Z	æ	Х	
ZØ	х				Ø		Z		Х	
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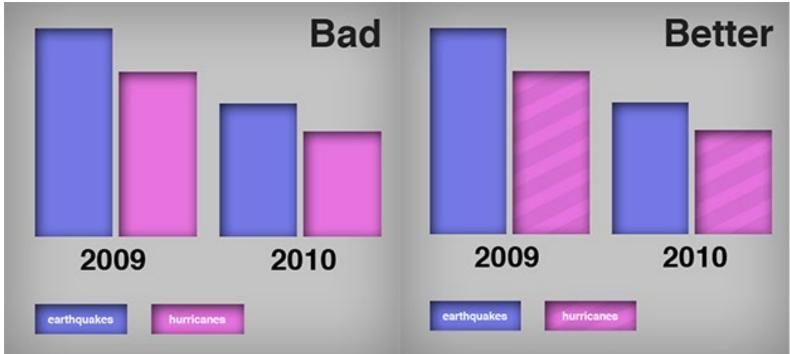
The columns of the table show the different bus line colors of Trondheim. The rows are linked to the test persons and the different marks show line colors, which looked the same to the person under test.



### Bus Route Brochures- Color Research

- Make designs monochrome by using various shades of a single color.
- **Use high contrast** since color-blind people can still perceive contrast, as well as differences in hue, saturation, and brightness.
- **Use texture** in addition to color intensity to differentiate between objects.
- Use a color-blindness checker for all proposed designs.



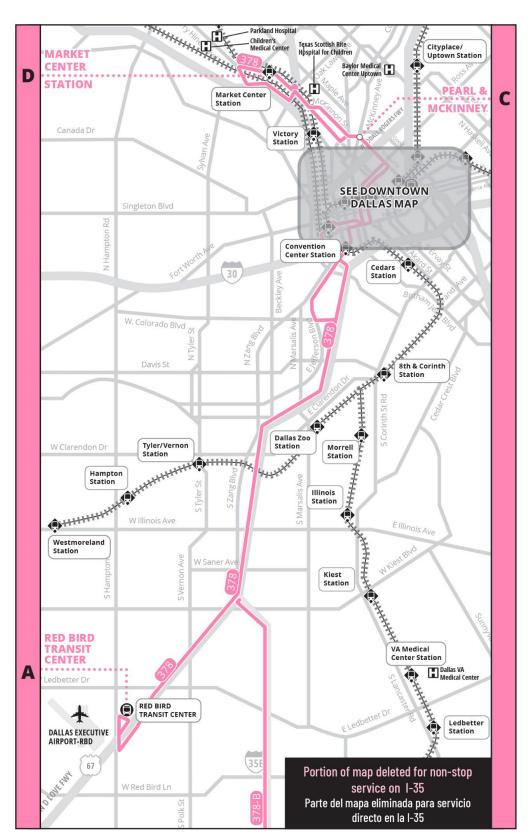


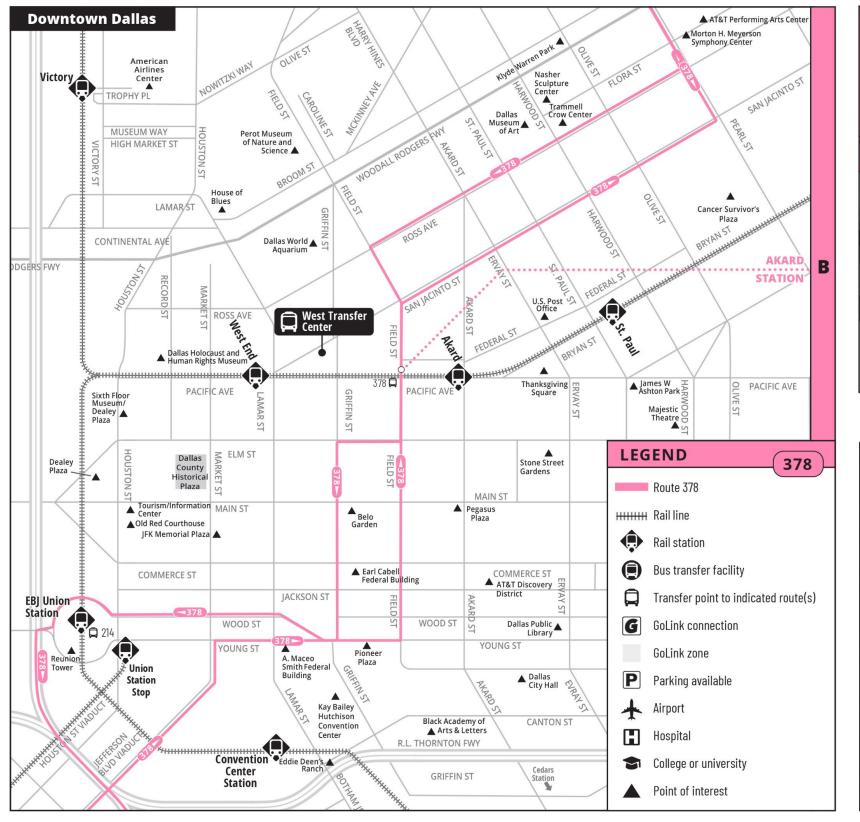


# Bus Route Brochures – New Design

### **SOLUTIONS:**

- Incorporated route type identifiers by color-coding the route brochures to its route-frequency group.
- Selected a two-color design to enhance readability.
- Enhanced the visibility of time points and AM/PM times my designating the start of day part with A or P.
- Simplified the number and style of icons used.



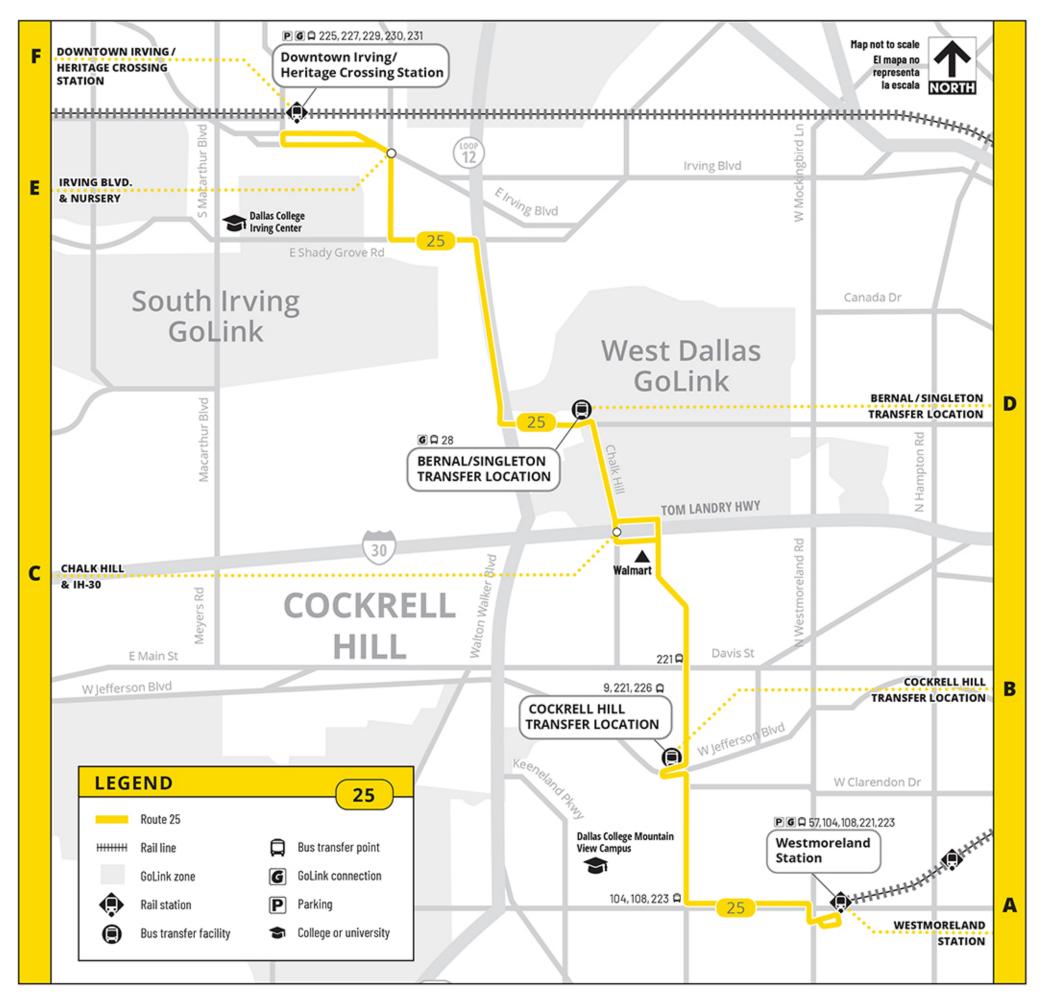


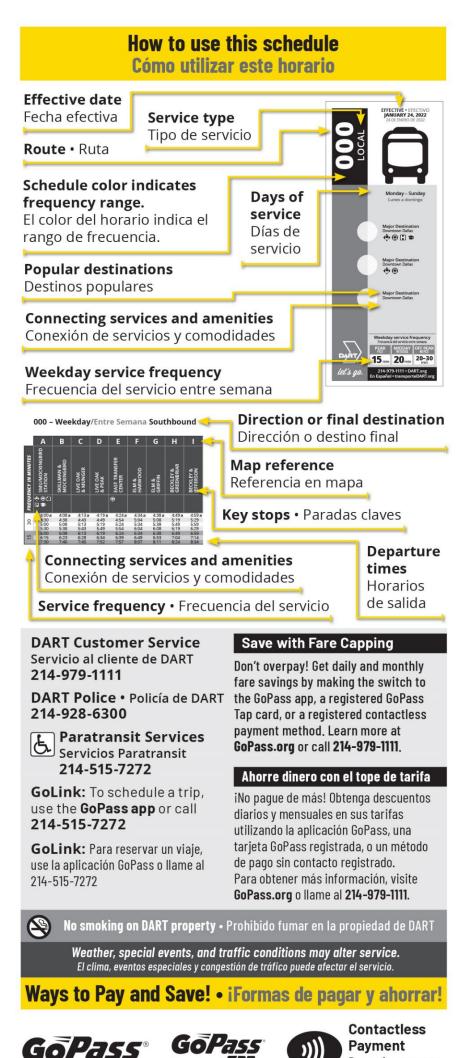


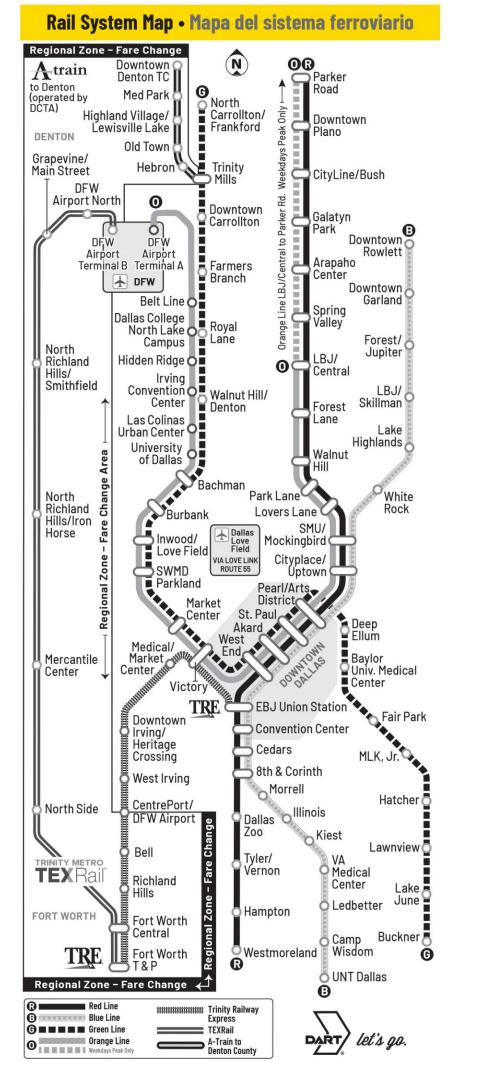




# Bus Route Brochures – New Design











# Bus Route Schedule – New Design

### **SOLUTIONS:**

- Incorporated route type identifiers by color-coding the route brochure to its route-frequency group.
- Selected a two-color design to enhance readability.
- New alternating colors and values not only increase readability of the schedule, but also indicate frequency of routes.
- Enhanced the visibility of time points and incorporated clear identifiers for AM/PM times by designating the start of day parts with A or P.
- Simplified the number and style of icons used.

### 25 – Weekday/entre semana Northbound

			-		-	-
	Α	В	С	D	Е	F
FREQUENCY IN MINUTES	WESTMORELAND STATION	COCKRELL HILL TRANSFER LOCATION	CHALK HILL & IH-30	BERNAL/SINGLETON TRANSFER LOCATION	IRVING BLVD. & NURSERY	DOWNTOWN IRVING / HERITAGE CROSSING STATION
FREQU				(a) (d)		
	4:14 <b>a</b>	4:25 <b>a</b>	4:34 <b>a</b>	4:39 <b>a</b>	4:48 <b>a</b>	4:52 <b>a</b> 5:22
30	4:44 5:14	4:55 5:25	5:04 5:34	5:09 5:39	5:18 5:48	5:22
	5:44	5:55	6:04	6:09	6:18	5:52 6:22
	6:14	6:25	6:34	6:39	6:50	6:54
	6:29 6:44	6:40 6:57	6:50 7:07	6:55 7:12	7:06 7:23	7:10 7:27
	6:59	6:57 7:12	7:22	7:27	7:38	7:27 7:42
	7:14	7:27	7:37	7:42	7:53	7:57
	7:29	7:42 7:57	7:52	7:57 8:12	8:08	8:12 8:27
15	7:44 7:59	8:12	8:07 8:22	8:12	8:23 8:38	8:42
	8:08	8:21	8:31	8:36	8:47	8:51 9:06
	8:23	8:36	8:46	8:51	9:02	9:06
6	8:38 8:53	8:51 9:06	9:01 9:15	9:06 9:20	9:16 9:30	9:20 9:34
	9:13	9:25	9:34	9:39	9:49	9:53
	9:28	9:40	9:49	9:54	10:04	10:08
	9:54	10:06 10:26	10:15	10:20	10:30	10:34
	10:14 10:34	10:26	10:35 10:55	10:40 11:00	10:50 11:10	10:54 11:14
	10:54	11:06	11:15	11:20	11:30	11:34
	11:14 11:34	11:26	11:35 11:55	11:40	11:50	11:54
	11:34 11:54	11:46 12:06 <b>p</b>	11:55 12:15 <b>p</b>	12:00 <b>p</b> 12:20	12:10 <b>p</b> 12:30	12:14 <b>p</b> 12:34
20	12:14 p	12:26	12:35	12:40	12:50	12:54
2	12:34	12:46	12:35 12:55	1:00	1:10	1:14
	12:54 1:14	1:06 1:26	1:15 1:35	1:20 1:40	1:30 1:50	1:34 1:54
	1:34	1:46	1:55	2:00	2:10	2:14
	1:54	2:06	2:15	2:20	2:30	2:34
	2:14	2:26 2:52	2:35	2:40	2:50 3:16	2:54 3:20
	2:40 3:00	3:12	3:01 3:21	3:06 3:26	3:36	3:40
	3:17	3:29	3:38	3:43	3:53	3:57
	3:35	3:47	3:58	4:03	4:15	4:19
	3:50 3:59	4:03 4:12	4:14 4:23	4:19 4:28	4:31 4:40	4:35 4:44
	4:14	4:27	4:38	4:43	4:55	4:59
15	4:29	4:42	4:53	4:58	5:10	5:14
-	4:44 4:59	4:57 5:12	5:08 5:23	5:13 5:28	5:25 5:40	5:29 5:44
	5:14	5:27	5:38	5:43	5:55	5:59
	5:29	5:42	5:53	5:58	6:10	6:14
	5:44	5:57	6:08	6:13	6:25	6:29
	5:59 6:14	6:12 6:27	6:23 6:38	6:28 6:43	6:40 6:55	6:44 6:59
	6:34	6:47	6:56	7:01	7:10	7:14
	6:54	7:06	7:15	7:20	7:29	7:33
20	7:14 7:34	7:26 7:46	7:35 7:55	7:40 8:00	7:49 8:09	7:53 8:13
2	7:54	8:06	8:15	8:20	8:29	8:33
	8:14	8:26	8:35	8:40	8:49	8:53
	8:34	8:46	8:55	9:00	9:09	9:13
-	8:54 9:14	9:06 9:26	9:15 9:35	9:20 9:40	9:29 9:49	9:33 9:53
	9:44	9:56	10:05	10:10	10:19	10:23
	10:14	10:26	10:35	10:40	10:49	10:53
30	10:44	10:56	11:05	11:10	11:19	11:23
	11:14 11:44	11:26 11:56	11:35 12:05 <b>a</b>	11:40 12:10 <b>a</b>	11:49 12:19 <b>a</b>	11:53 12:23 <b>a</b>
	12:14 <b>a</b>	12:26 <b>a</b>	12:35	12:40	12:49	12:53
	12:44	12:56	1:05	1:10	1:19	1:23

A weekend schedule will be operated on days observed for New Year's Day Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday following Thanksgiving, and Christmas Day.

### 25 - Weekday/entre semana Southbound

	F	E	D	С	В	A
FREQUENCY IN MINUTES	DOWNTOWN IRVING / HERITAGE CROSSING STATION	IRVING BLVD. & NURSERY	BERNAL/SINGLETON TRANSFER LOCATION	CHALK HILL & IH-30	COCKRELL HILL TRANSFER LOCATION	WESTMORELAND STATION
FREQUE	� <b>G</b> P		(a) (d)	<b>A</b>		
30	4:00 <b>a</b> 4:30 5:00 5:30	4:04 <b>a</b> 4:34 5:04 5:34	4:15 <b>a</b> 4:45 5:15 5:45	4:20 <b>a</b> 4:50 5:20 5:50	4:29 <b>a</b> 4:59 5:29 5:59	4:37 <b>a</b> 5:07 5:37 6:07
15	6:00 6:15 6:30 6:45 7:00 7:15 7:30 7:45 8:00 8:15 8:30 8:45	6:04 6:19 6:35 6:50 7:05 7:20 7:35 7:50 8:05 8:20 8:35 8:50	6:15 6:30 6:47 7:02 7:17 7:32 7:47 8:02 8:17 8:32 8:47 9:02	6:20 6:35 6:52 7:07 7:22 7:37 7:52 8:07 8:22 8:37 8:52 9:07	6:29 6:46 7:03 7:18 7:33 7:48 8:03 8:18 8:33 8:48 9:03 9:18	6:37 6:56 7:13 7:28 7:43 7:58 8:13 8:28 8:43 8:58 9:12 9:27
20	9:00 9:20 9:40 10:00 10:20 10:40 11:20 11:40 12:00 <b>p</b> 12:20 12:40 1:20 1:40 2:00 2:20 2:40	9:05 9:25 9:45 10:05 10:25 10:25 11:05 11:25 12:05 <b>p</b> 12:25 12:45 1:05 1:25 1:45 2:05 2:25 2:45	9:16 9:36 9:56 10:16 10:36 10:56 11:16 11:36 12:16 <b>p</b> 12:36 12:56 1:16 1:36 1:56 1:16 1:36 1:56 1:56	9:21 9:41 10:01 10:21 10:41 11:21 11:41 12:01 <b>p</b> 12:21 12:41 1:01 1:21 1:41 2:01 2:21 2:41 3:01	9:32 9:52 10:12 10:32 10:52 11:12 11:32 11:52 12:12 <b>p</b> 12:32 12:52 1:12 1:32 1:52 2:12 2:32 2:52 3:12	9:41 10:01 10:21 10:41 11:01 11:21 11:41 12:01 <b>p</b> 12:21 12:41 1:01 1:21 1:41 2:01 2:21 2:41 3:01 3:21
15	3:00 3:15 3:30 3:45 4:00 4:15 4:30 4:45 5:00 5:15 5:30 5:45	3:05 3:20 3:35 3:51 4:06 4:21 4:36 4:51 5:06 5:21 5:36 5:51	3:16 3:31 3:46 4:03 4:18 4:33 4:48 5:03 5:18 5:33 5:48 6:03	3:21 3:36 3:52 4:09 4:24 4:39 4:54 5:09 5:24 5:39 5:54 6:09	3:32 3:47 4:04 4:21 4:36 4:51 5:06 5:21 5:36 5:51 6:06 6:21	3:41 3:57 4:14 4:31 4:46 5:01 5:16 5:31 5:46 6:01 6:16 6:31
20	6:00 6:20 6:40 7:00 7:20 7:40 8:00 8:20 8:40 9:00 9:20 9:40	6:06 6:26 6:46 7:05 7:25 7:45 8:05 8:25 8:45 9:05 9:25 9:45	6:18 6:38 6:56 7:15 7:35 7:55 8:15 8:35 8:55 9:15 9:35	6:24 6:44 7:01 7:20 7:40 8:00 8:20 8:40 9:00 9:20 9:40	6:36 6:56 7:11 7:30 7:50 8:10 8:30 8:50 9:10 9:30 9:50	6:46 7:04 7:19 7:38 7:58 8:18 8:38 8:58 9:18 9:38 9:58 10:18
30	10:00 10:30 11:00 11:30 12:00 <b>a</b> 12:30	10:05 10:35 11:05 11:35 12:05 <b>a</b> 12:35 1:05	10:15 10:45 11:15 11:45 12:15 <b>a</b> 12:45 1:15	10:20 10:50 11:20 11:50 12:20 <b>a</b> 12:50 1:20	10:30 11:00 11:30 12:00 <b>a</b> 12:30 1:00 1:30	10:38 11:08 11:38 12:08 <b>a</b> 12:38 1:08 1:38

Se observará un horario de fin de semana durante Año Nuevo, el Día de los Caídos, el Día de la Independencia, el Día del Trabajo, el Día de Acción de Gracias, el viernes siguiente a Acción de Gracias y Navidad.















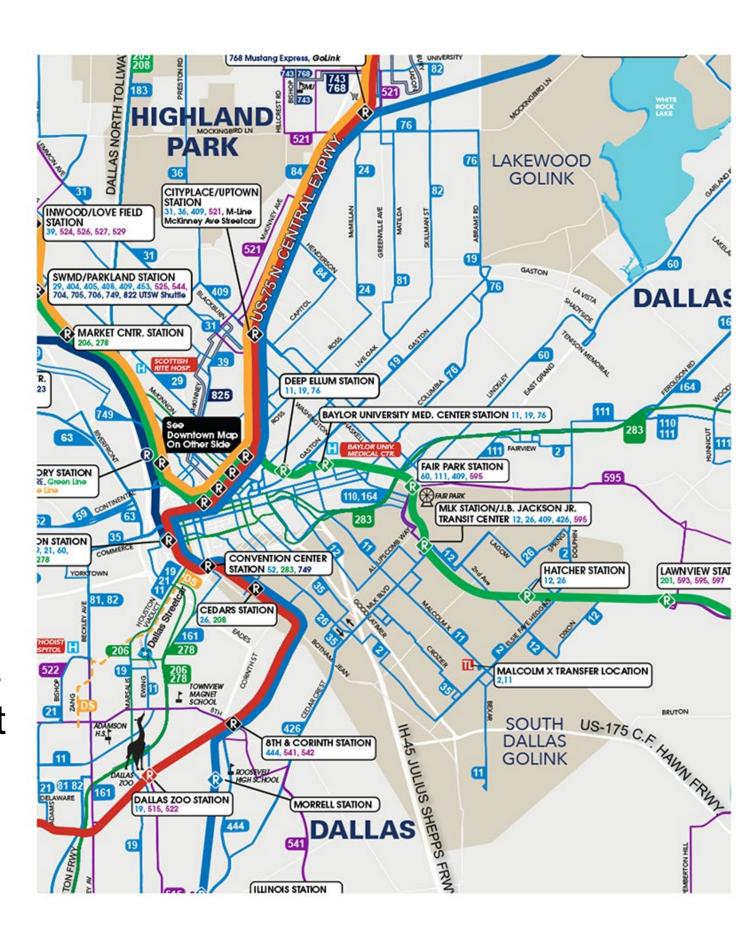
Point of Interest

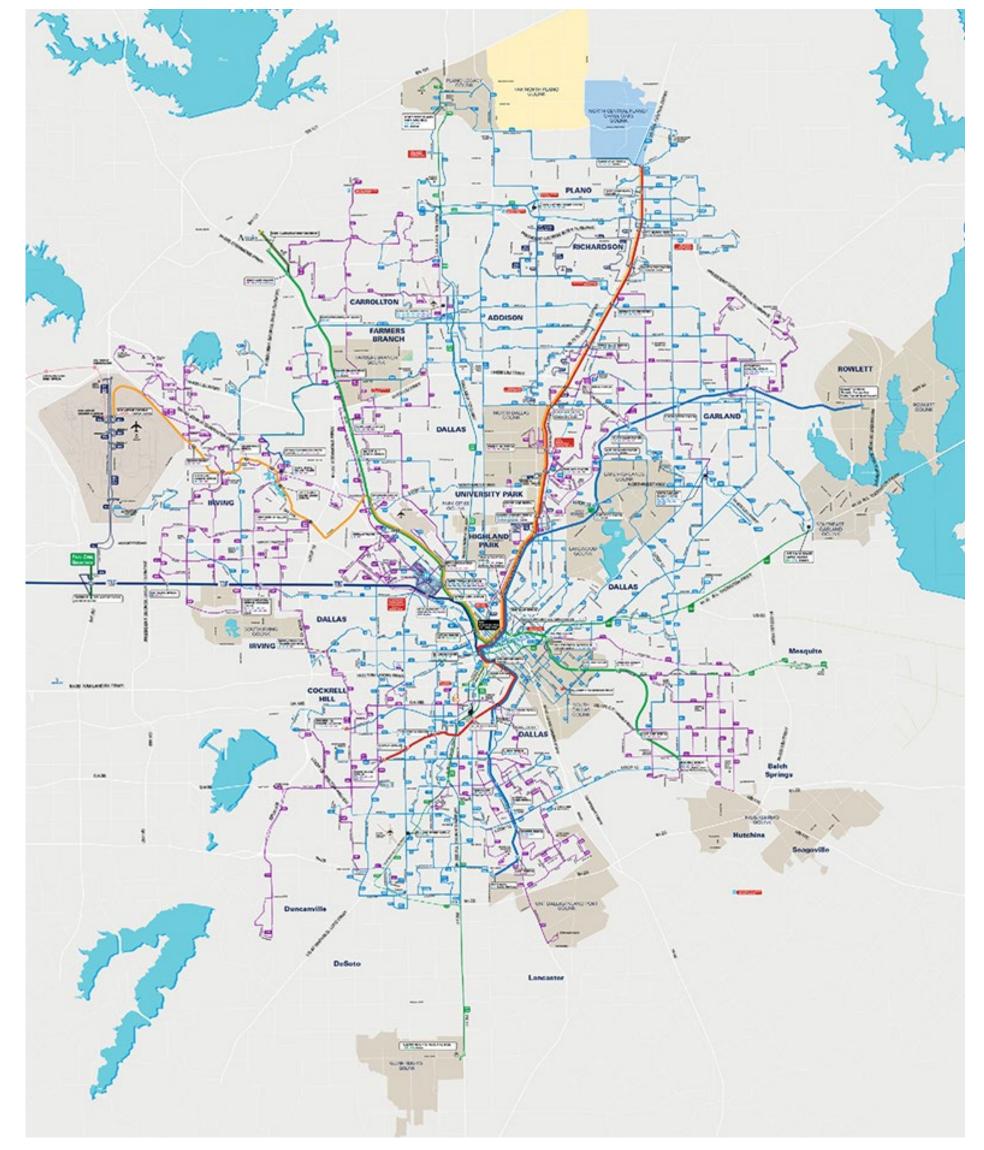
This schedule shows select bus stops. For all stops visit DART.org • Este horario muestra las paradas de autobús seleccionadas. Para conocer todas las paradas, visite DART.org

# System Map – Previous Design

### CHALLENGES

- Grey and taupe backgrounds = unexcited, dirty look.
- Water features and city names are the most prominent aspect of the map.
- Too much focus on internal terms: transit centers vs. Park & Rides vs. transfer centers, each with unique icons.
- Route number tabs are disruptive to the overall appearance.
- Too much overall content that results in text being smaller than 8-point font (required for ADA compliance) in many instances.



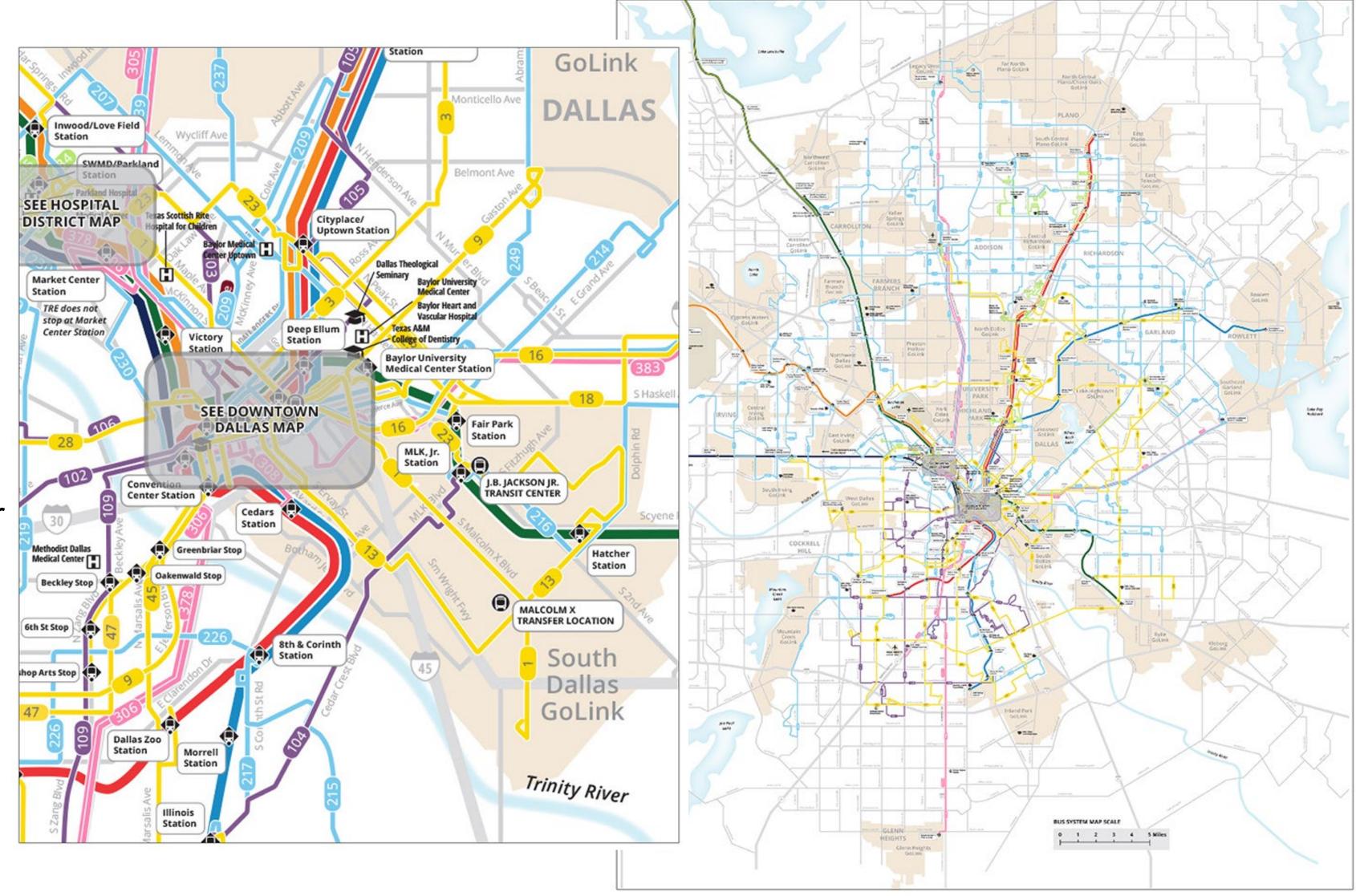




# System Map – New Design

### **SOLUTIONS:**

- Used less color for the background to increase contrast between routes.
- Simplified the map to make it less intimidating and more user-friendly.
- Differentiated bus routes not only from each other but also from other transit services by adding a white border around route lines.
- Color-coded bus route lines based on their frequency category; map color matches the route brochure color.
- Stylized map elements of the map rather than adhering to strict geographic representation.
- Focused on bus service information since another map focuses on the rail lines.

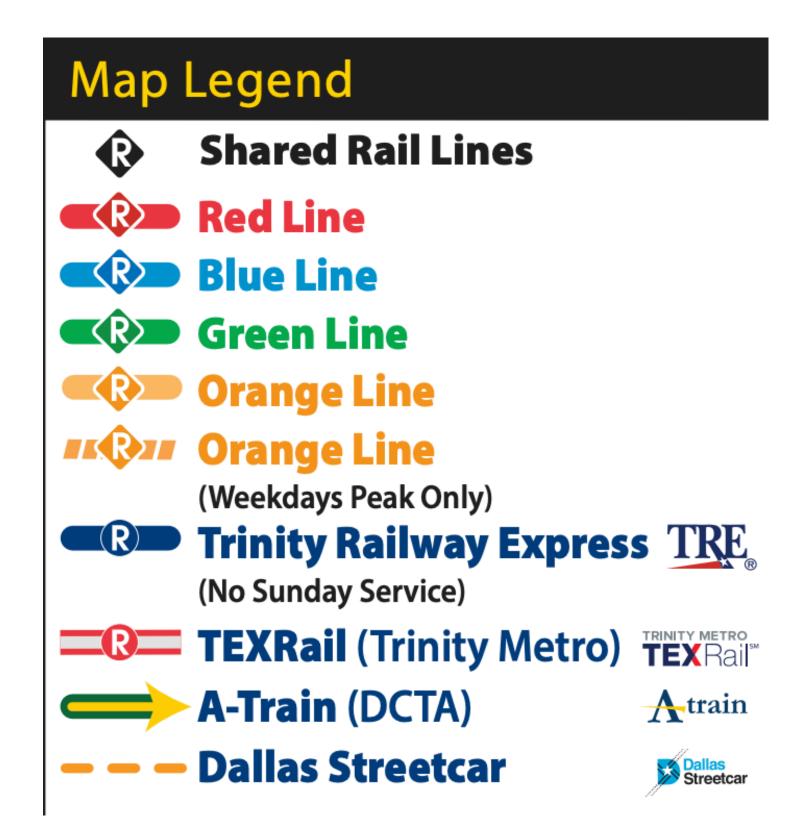


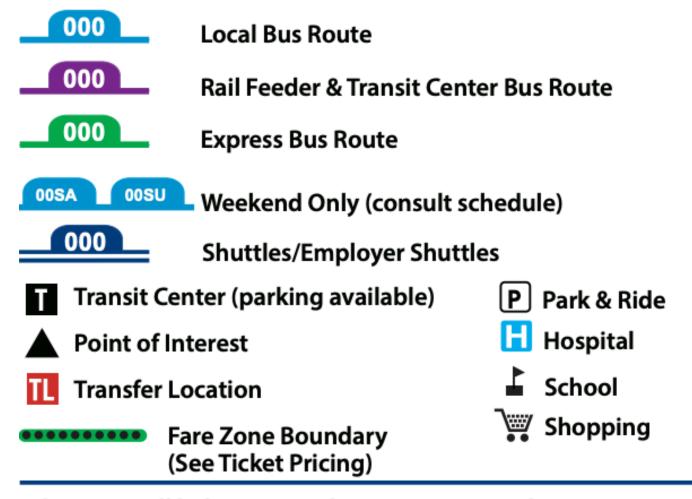


# Icon System – Previous

### **CHALLENGES**

- DART used a mix of alphanumerics, shapes, icons, and logos. Most other transit agencies use one system, or no more than two.
- Icons used on the maps weren't listed on the legend or didn't match the legend.
- Too many pictographic icons did not replicate well at small sizes.
- We had too many unique icons, such as logos for specific locations or services. Icons were not universal and added confusion.
- Maps were inconsistent in icon use; e.g., some hospitals were shown but not others; no rules for schools, parks, shopping, etc.
- There was too much irrelevant detail in areas like DFW Airport.





This map will help you use the DART Bus & Rail System. For specific route and schedule information, please refer to individual route timetables or visit us at dart.org or transportedart.org

214-979-1111



# Icon System – New

- Implemented universally recognized icons for rail and bus service but used shape to help distinguish between them at a small size.
- Used alphanumerical icons where they have achieved widespread recognition (H = hospital, P = parking).
- Chose an alphanumeric icon for GoLink, a uniquely DART service, but we will evaluate whether to establish a universal icon for on-demand transit in the future.
- Created a simple, direct legend that fits better on maps and brochures.
- Ensured that symbols worked well in a limitedcolor environment.



DART Rail station or all rail stations

**Bus Transfer** 

**Parking** 

Accessible

Airport



GoLink



Hospital

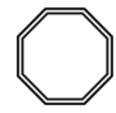


College or University



Point of Interest

### **GoLink map only icons**









Anchor facility

### **Potential Icon**





# Bus Stop Signs

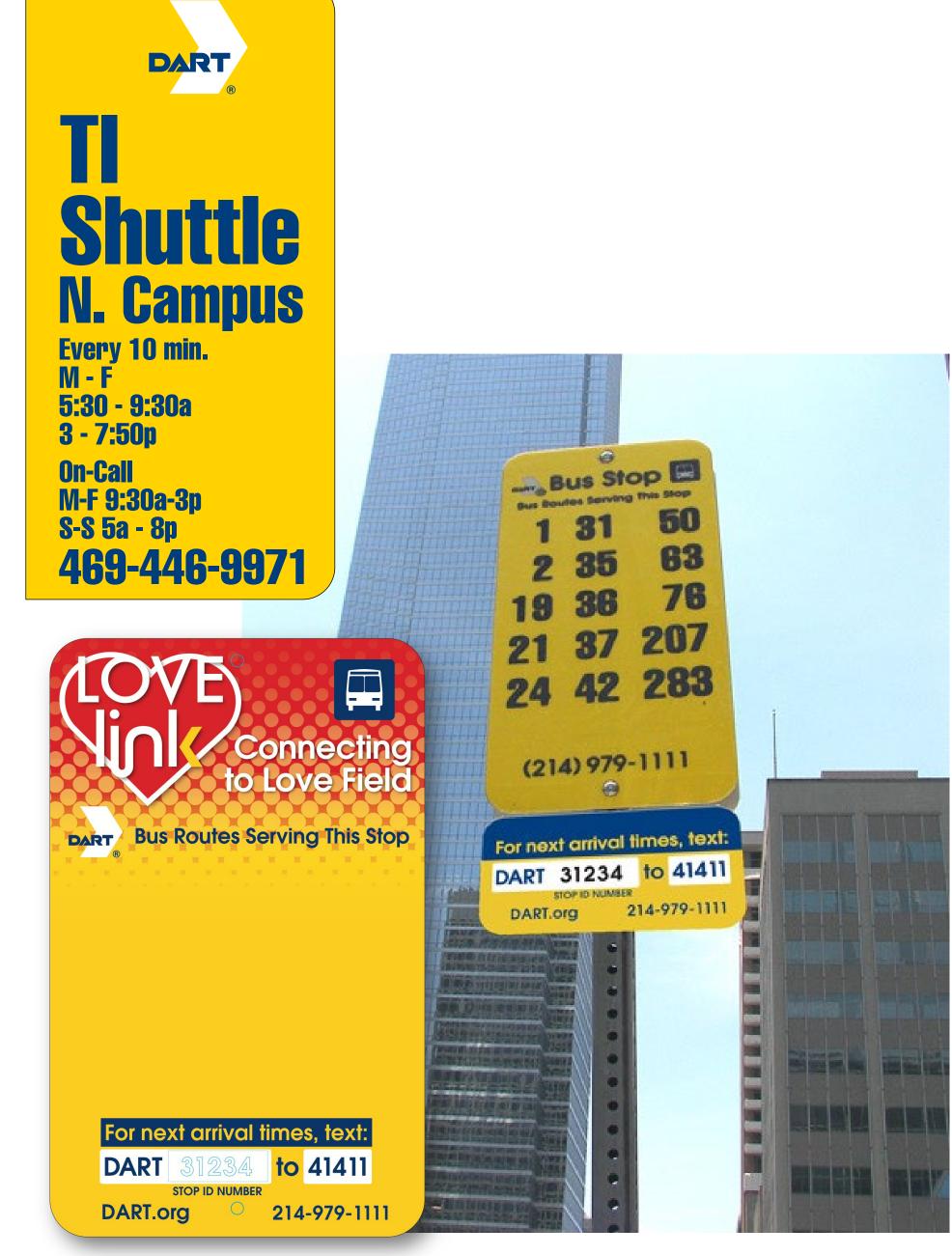


# Bus Stop Signs – Previous

### **CHALLENGES:**

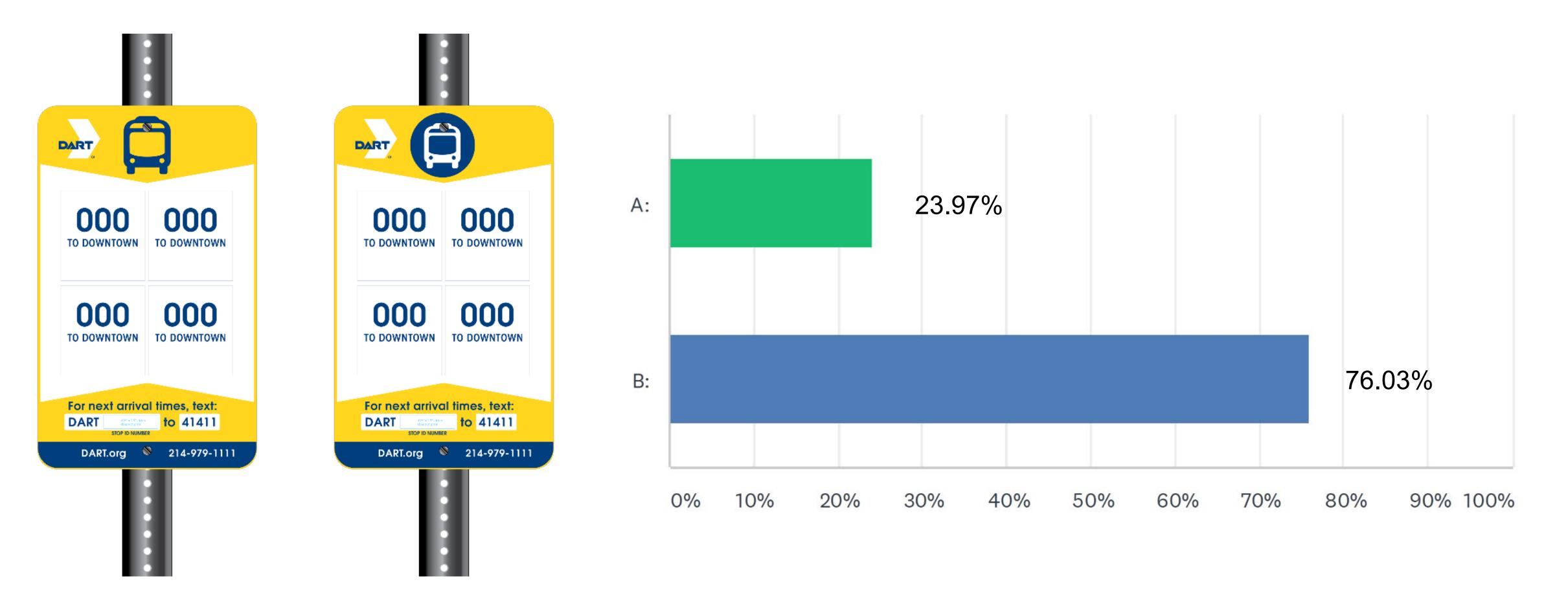
- DART's bus stop signs often got visually lost in the sea of other street signs.
- Signs were one-sided, so riders couldn't see the bus stops if they were coming from the wrong direction.
- Elements that identified the sign as a bus stop – that is, the words "Bus Stop" and the bus icon – were too small to be seen clearly at a distance.
- Colorful route number decals on a yellow background didn't provide enough contract for visually impaired riders.
- Font sizes on elements like route direction or arrival time information were too small to be seen unless you were under the sign.
- The colorful design felt dated.







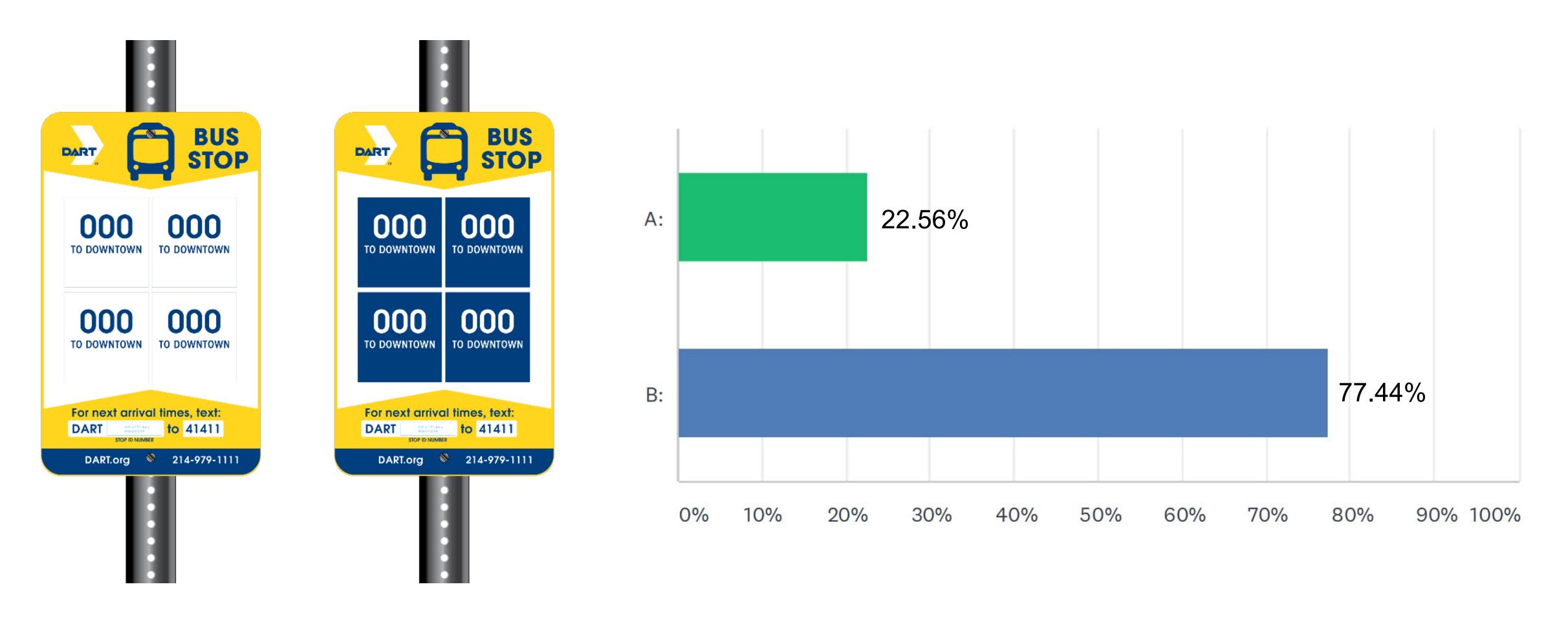
# Bus Stop Sign Research – Identifiers





DART riders felt that a white bus icon on a dark background was easier to identify from a distance.

# Bus Stop Sign Research – Route Numbers

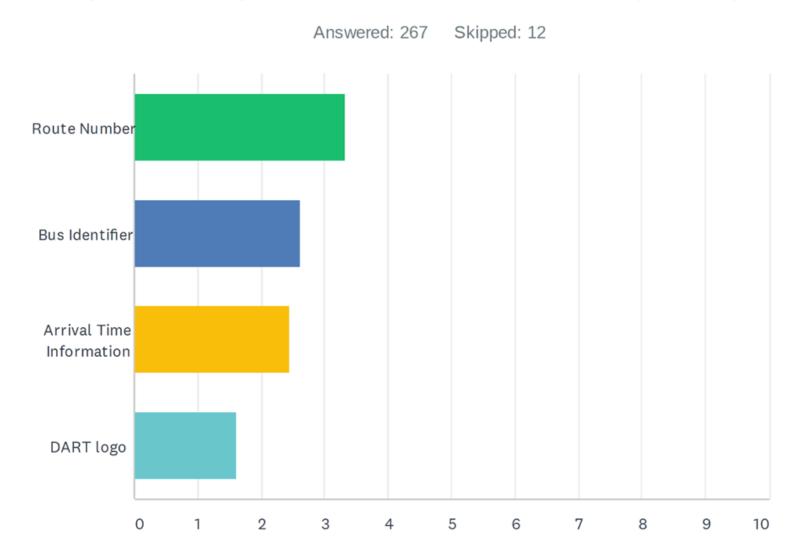




DART riders felt that white numbers on a dark background was easier to read from a distance.

# Bus Stop Sign Research – Information Hierarchy

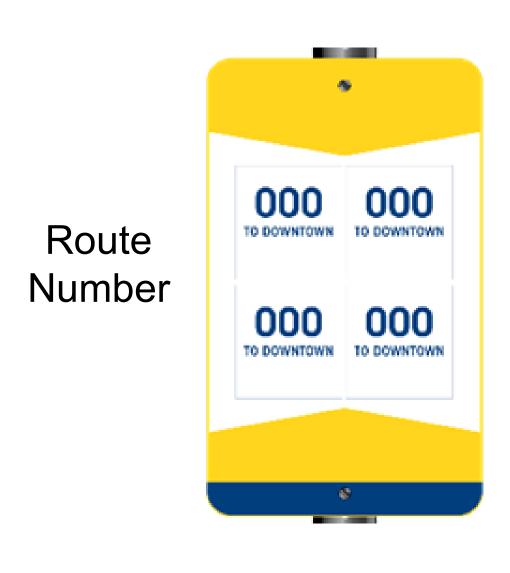
Q7 Please rank the importance of the information on each of the bus stop signs below (from most "1" to least "4" important):



	1	2	3	4	TOTAL	SCORE
Route Number	51.97% 132	31.89% 81	12.60% 32	3.54% 9	254	3.32
Bus Identifier	22.05% 56	26.38% 67	42.91% 109	8.66% 22	254	2.62
Arrival Time Information	14.50% 38	34.73% 91	32.44% 85	18.32% 48	262	2.45
DART logo	13.49%	4.76% 12	10.71% 27	71.03% 179	252	1.61



DART asked its riders what information was most important to them on a bus stop sign.



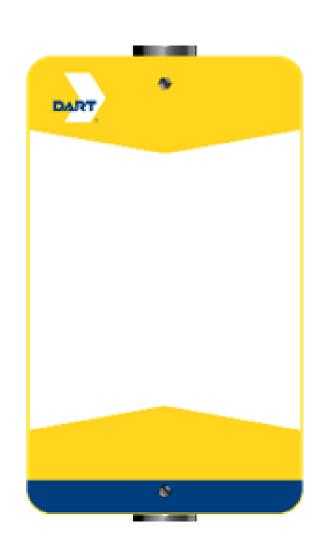


Bus Stop Identifier



Arrival

Time



**DART** logo

# Bus Stop Signs – New

### SOLUTIONS:

- Simplified and modernized the design and increased the size of the sign.
- Created two-sided signs so that riders can find bus stops when coming from either direction.
- Enlarged the size of the bus route decals and used white numbers on a dark blue background for greater contrast.
- Increased the visibility of the bus stop identifiers by 150%.
- Made the arrival time information larger and easier to find.
- Used a highly reflective material to ensure bus operators can find the stops easily.



